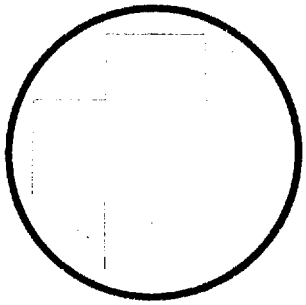
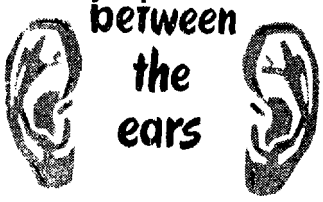
SAFETY MANUAL



1 June, 1951

SAFETY STARTS



SAFETY IS A MATTER OF PERSONAL CONCERN TO EVERYONE. PROVIDING SAFE WORKING CONDITIONS BY ELIMINATING HAZARDS CANNOT BE ACCOMPLISHED BY ADHERING TO A SET OF RULES OR REGULATIONS ALONE BUT MUST BE THE CONCERN AND EVERY DAY PRACTICE OF EACH INDIVIDUAL.

THIS MANUAL MAKES NO ATTEMPT TO BE ALL-ENCOMPASSING.--IT WAS PREPARED AS A GUIDE AND SHOULD BE USED AS SUCH. IT IS HOPED THAT FREQUENT REFERENCE TO THE MANUAL WILL HELP ALL EMPLOYEES TO BECOME CONSCIOUS OF THEIR OWN SAFETY AS WELL AS THE WELL-BEING OF THEIR FELLOW EMPLOYEES AND IN SO DOING WILL PREVENT PERSONAL INJURY AND UNNECESSARY DESTRUCTION OF PROPERTY.

SAFETY OFFICER

INDEX TO SAFETY MANUAL

SAFETY MANUAL

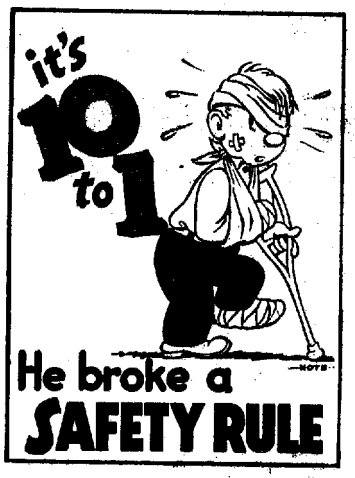
INTRODUCTION

1. Purpose

This manual is composed of rules which must be observed to insure safe operations. It should be used as a guide and reference by all employees, and especially by safety officers, supervisors and inspectors.

2. Scope

The rules and suggestions contained herein are considered the minimum for normal operations and may be supplemented with additional material as needed. Lack of specific mention herein of any safety practices must not be considered as a license to disregard such safe practices. Specific problems involving safe operations or safe practices will be given study by the Safety Officer as the need arises.



3. Application

Accident prevention is a problem of organization and education. Accidents can occur only when preceded by or accompanied by the unsafe act of a person or the existence of a mechanical or physical hazard. Statistics show that ninety per cent of all industrial accidents are caused by unsafe practices. It therefore becomes incumbent on all supervisory personnel to see that all employees in their area are properly indoctrinated in safe practices and that safe practices are strictly adhered to.

4. Responsibility

Fundamentally the responsibility for the operation of a safety program rests with the Area Safety Officers who are assigned the direct responsibility for the application and observance of safety rules and regulations in the areas assigned to them.

5. The Theory of Accident Prevention

Accidential injuries cannot occur unless some person acts unsafely or is exposed to a mechanical or physical hazard. It is better to locate and correct unsafe conditions and unsafe acts before they cause an accident rather than determine such conditions or acts as having caused an injury or death. Accident prevention expressed in simple form is the work of correcting unsafe acts of persons and unsafe mechanical or physical conditions.

CHAPTER I

GENERAL REGULATIONS

The following safety regulations are applicable to all activities in which employees may be engaged and will not be repeated for each specific operation in Chapter II, but will be presumed to be in effect in all operations.

1. Operating Requirements

a. Appraisal of Job.

Project supervisors will study carefully safety requirements and prevailing work conditions, in order to estimate his particular safety needs.

b. Selection and Assignment of Personnel.

Judgment should be used in assigning work within the limits of employee capabilities.

c. Congestion.

Work areas should permit freedom of operation. The presence of equipment, tools, materials and personnel not required will be avoided.

d. Instruction.

No job will be attempted until the supervisor is assured that each employee on the job has received adequate instruction in the performance of his assignment including instruction in safe work practices and in the use of special and personal protective equipment.

e. Protection of Personnel.

Personnel will be given the benefit of such protective clothing and equipment essential to the safe performance of an assigned task. Likewise consideration will be given to work conditions and to the adequacy of ventilation.

f. Sanitary Conveniences.

All places of employment will be provided with:

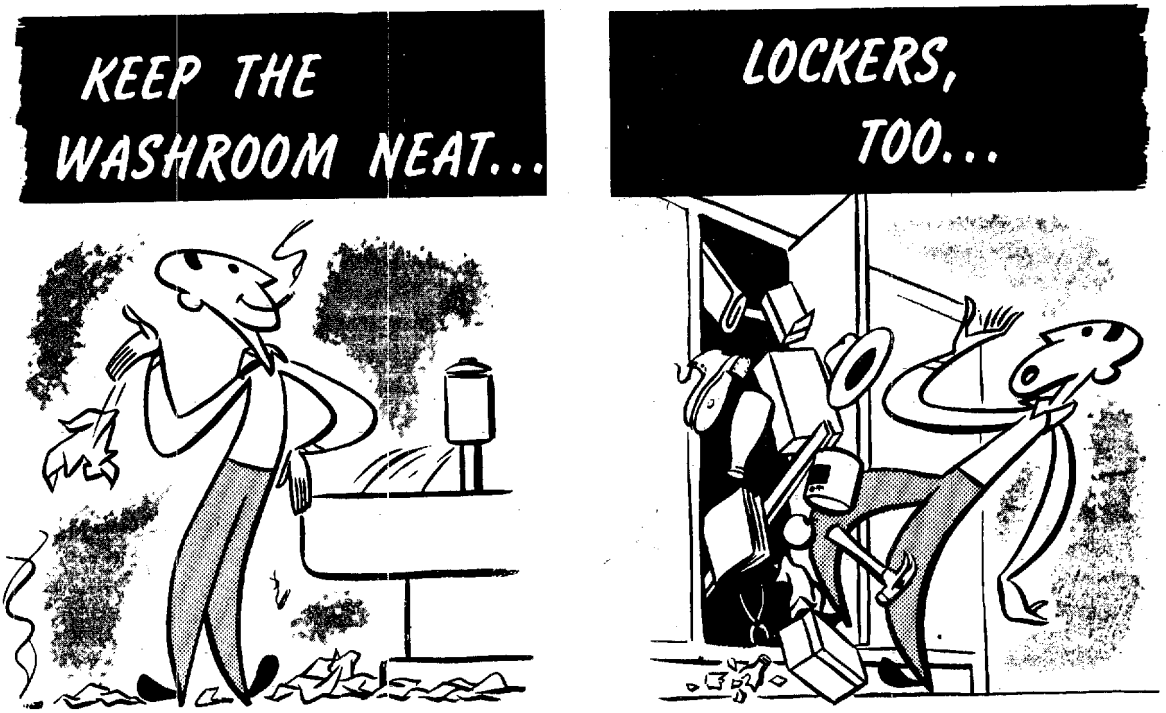
(1) An adequate supply of pure and properly dispensed drinking water.

(2) Adequate disposal of waste.

(3) Adequate facilities for maintaining personal cleanliness.

(4) Adequate facilities for heating and ventilation.

(5) Adequate toilet facilities.



g. Tools, Equipment and Machines.

Sufficient properly designed tools and equipment and provision for their maintenance will be supplied for every job. Machine guards will be employed where mechanical hazards exist or are likely to be encountered. This includes the protection of all moving parts of machinery and transmission equipment.

h. Inspection of New Equipment and Machinery.

All new machinery and equipment which may have safety hazards must have approval of the Safety Officer before being put into use.

i. Housekeeping.

High standards of housekeeping will be required and the maintenance thereof enforced. The following is a partial list of items

to be considered:

(1) Adequate Lighting.

(2) Clean and orderly equipment machinery, and working surfaces.

(3) Ample and orderly tool storage.

(4) Ample and orderly material storage.

(5) Sufficient number of approved waste containers.

(6) Systematic removal and disposal of waste.

j. Transportation.

All vehicles, whether empty or engaged in the transportation of personnel, property or supplies, must strictly observe all traffic and safety laws, rules and regulations. Close attention must also be given to the instruction of drivers in safety practices and "courtesy of the road." Disciplinary control of drivers and inspection of the condition of transportation equipment and its safety devices shall be continually maintained.

k. Accident Reporting.

All personnel will report promptly to their immediate supervisor all injuries to person no matter how trivial. When written reports are required, they should be completed and processed as expeditiously as possible. It will be the supervisor's responsibility to insure that a proper report is made to the Area Safety Officer.

1. First Aid and Medical Services

(1) First aid equipment will be located at appropriate and easily accessible locations in all areas and will be maintained by the Medical Office. First Aid instructions will be given by the Medical Office to designated employees in all areas. All injuries, however minor, should be reported to the First Aid Attendant for attention. Do not try to treat yourself. Never try to remove any object from your own or some other person's eye. Bruises, bumps and sprains, though seemingly slight, may sometimes cause later trouble. All injuries will be reported to the Medical Office.

(2) Should the Medical Emergency Room be closed, the employee may obtain treatment at the U. S. Public Health Service Dispensary, Railroad Retirement Building. If the injury is sustained in the line of duty at a time when neither is open, treatment should be obtained at Providence Hospital. Phone numbers for emergency medical treatment and ambulance service should be conspicuously posted in all areas.

(3) Special medical examinations will be given whenever an employee is performing work for which it appears he is physically or emotionally unfit.

(4) Special studies will be made of conditions whenever there are indications of factors existing which may be detrimental to health.

m. Fire Prevention and Protection.

(1) Fire drills will be held at least once each six months in every building regularly occupied.

(2) Stairs, fire escapes and fire exits should always be clear and unobstructed. Fire doors and fire windows should not be blocked open. This would prevent them from closing automatically in case of fire.

(3) Oily rags and waste should be disposed of in metal, covered cans, provided for that purpose. Work clothing, particularly oily garments, should be hung up so that air can circulate through them. Oily clothing, rags, or waste must not be kept in lockers. Rubbish or flammable materials must not be allowed to accumulate.

(4) All smoking rules must be observed. Matches and cigarette lighters, open lights and fires must be kept away from all places where flammable liquids or solvent fumes are present.

(5) It is the duty of every employee to know the location of the nearest fire alarm box. Keep all aisles and passageways to fire equipment and alarm boxes free from obstruction.

(6) If you discover a fire, no matter how small it may appear, activate the building alarm at once, and proceed in accordance with the Building Evacuation Plan. If an alarm box outside a building is used to summon a fire department, remain at the box until fire fighting personnel arrive. Become acquainted with the location of all fire extinguishers in your area and know what type of fire they should be used on.

(7) Fire equipment must not be used for any purpose except fighting fires. Do not tamper with any fire fighting equipment. If any fire equipment looks as though it has been tampered with, notify your supervisor immediately.

(8) Combustible liquids, such as gasoline, alcohol, benzine, or naptha, must be handled in approved safety containers.

(9) Fire extinguishers will be inspected and tagged at least once each year. Extinguishers which have been used or are found to be only partially filled will be refilled immediately.

(10) Fire extinguishers will be clearly marked to designate the types of fires on which they may be used. Their uses are as follows:

(a) Use soda acid on fires in wood, paper, textiles, rubbish, etc. It may be used on small spills of oils, greases and gasoline. Do not use on electrical fires.

(b) Use foam on fires in wood, paper, textiles, rubbish and on oil, grease and gasoline fires. Do not use on electrical fires.

(c) Use carbon tetrachloride on oil, grease, gasoline and electrical fires. It is not recommended for use on fires in wood, paper, textiles, and rubbish.

(d) Use carbon dioxide on oil, grease, gasoline and electrical fires. It is not recommended for wood, paper, textile and rubbish fires.

(e) Use dry compound on oil, grease, gasoline and electrical fires. It is not recommended for wood, paper, textile and rubbish fires.

(11) At areas or installations which have fire hazards peculiar to their operations or which are isolated from regular fire departments, appropriate fire fighting equipment will be furnished, regularly inspected, and maintained in good operating condition. In such areas or installations a fire brigade should be organized and trained in the use of fire equipment.

n. Warning and Protective Devices.

Warning signs and protective devices will be employed to assure protection to workers as well as passers-by. This generally includes the placing of informatory signs; the use of color markings to emphasize physical hazards; the location of safety equipment, and

to identify fire and other protective equipment; the placing of handrails, toeboards, and non-slip floor surfaces on platforms, walkways, stairways and wherever one may fall from an elevation.

o. Color Marking.

The safety color code set out below defines the application of color to specific problems in connection with accident prevention and designates the colors to be used for such purposes.

(1) Red - red will be used as the basic color for identification of:

(a) Fire protective equipment and apparatus, such as fire alarm boxes, fire buckets or pails, fire extinguishers, fire hose locations, etc.

(b) Safety equipment, such as safety cans or other portable containers for flammable liquids, danger signs, stop buttons, electrical switches used for emergency purposes etc.

(2) Yellow - yellow will be used as the basic color for designation of stumbling, falling and tripping hazards, such as pillars, posts, or columns, which might be struck, exposed, or the unguarded edges of platforms, pits, etc.

(3) White - white with a Red Cross will indicate the location of first aid equipment, first aid dispensaries, stretchers, safety deluge showers, etc.

p. Miscellaneous.

(1) When an office or installation with heavy equipment is moved to a new location, or when additional heavy equipment or safes are installed in any office, approval of floor loading should be obtained from Administrative Services.

(2) Incinerators will be operated only by designated, trained employees.

2. Safe Practices (General)

a. Be safety minded and practice safety first. Always watch what you are doing.

b. Be sure you understand the safe way to perform any task given you. Help new employees to avoid unsafe practices.

c. Bring to the attention of your supervisor at your first opportunity any unsafe conditions you may observe.

d. Report all injuries promptly so that proper first aid or medical treatment can be given.

e. Never run; walk.

f. Never engage in horse play or practical jokes.

g. Maintain good housekeeping at all times.

h. Wear safe clothing. Do not wear loose or ragged sleeves, unbuttoned coats, neckties or other loose clothing when working around power driven machinery.

i. Wear clothes required and approved for the particular job and use protective equipment provided for you on special jobs.

j. Tools and similar equipment needed for a job should be inspected before using. Use only tools that are in good condition. Report broken or defective equipment to your supervisor. Always use the proper tool for the job and store sharp edged tools in a safe place. There are specific safety rules for particular tools which you should know before making use of them.

k. Do not attempting to lift or push objects which are too heavy for you. Learn to lift the proper way to avoid strains.

l. In carrying materials keep the load close to the body. Avoid carrying heavy objects too great a distance. Do not pile material so as to obstruct your view and when carrying long objects keep the front end high to avoid injuries to others.

m. Do not attempt to repair or adjust electrical or mechanical equipment unless it is part of your regular work. Treat all electrical wires as live wires. Use portable electrical equipment only when it is in good condition, properly grounded and with no frayed cords.

n. See that all safeguards are in place and check to make sure that everything else is in perfect condition.

o. Do not talk to anyone while operating machines and never distract attention of another operator.

p. Do not overreach. Stretching to reach overhead objects may result in falls or strains. Do not reach around, over, or under a moving part of any machine. If it is necessary to climb, use only a ladder that is in good condition; do not use boxes, barrels, or chairs.

q. Wash your hands carefully with plenty of soap and water before eating, and if possible before returning to your duties.

r. Increase the intake of water and salt to allay effects of exposure to excessive heat.

CHAPTER II

SPECIAL REGULATIONS

1. Office Practices

a. Operating Requirements. In addition to the general regulations set out in Section 1, Chapter I, the following is required for safe office operation.

(1) Metal waste baskets with sharp edges or points will not be used.

(2) Exposed sharp points on wire or metal mail baskets will be repaired.

(3) Spike files will not be used.

(4) Broken glass desk tops will be discarded.

(5) Loose veneer on desks and grooved backs of swivel chairs will be repaired.

(6) Sharp burrs on metal filing cabinet edges and perforations will be removed.

(7) Metal lockers, shelving, etc., which are not afforded a stable footing, should be secured to walls or floors.

(8) Overloading of files so that they may topple over if top drawers are pulled out all the way will not be permitted.

(9) Floors should be treated to prevent slipping and be maintained in a safe condition.

(10) Loose linoleum or carpeting which creates tripping hazards will be made fast or repaired.

(11) All room hardware such as door knobs, door stops, window catches, transom operators, etc. will be maintained in good repair for safety.

(12) Protruding items such as radiator valves, pencil sharpeners, etc. should be located so as not to be a bumping or tripping hazard.

(13) Protruding power and telephone outlets or conduits will be guarded by a permanent fixture or covered by a semi-permanent fixture such as a desk.

(14) Stacked printed matter will not be stored without sufficient ventilation.

(15) Highly flammable materials shall not be stored in lockers or in cloak rooms, but must be kept in prescribed containers.

(16) Electric cords that have worn insulation or are otherwise damaged will not be used. Extension cords will not be placed on the floor across aisles or in other areas where employees have occasion to walk. Cords for office appliances will be no longer than seven feet.

(17) Moving parts on addressographs, mimeographs, bookkeeping and tabulating machines and other types of power driven equipment should not be exposed.

(18) Electric fans should be properly anchored and guarded and maintained in good operating condition. They should be installed at points where employees are not likely to come into contact with them. Fans within six feet of the floor should have the blades enclosed in guards.

(19) If electrical appliances such as hot plates and percolators are installed, it will be required that:

(a) Circuits be checked to be sure they can safely carry the extra load.

(b) Red pilot lights be installed.

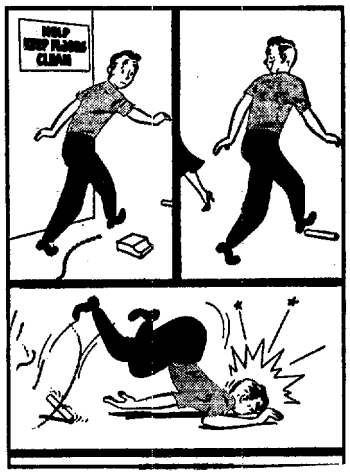
(c) Asbestos or metal protection be placed around and under the plate.

(d) Plates have concealed elements.

(e) Plates be fastened down if possible.

b. Safe Practices. In addition to the safe practices listed under Section 2 of Chapter I, the following additional rules are required for safe office practice.

(1) Do not allow waste paper, discarded magazines, newspapers, or similar material to accumulate on floors as these may cause slipping and create fire hazards.



(2) Do not stack material on top of lockers, file cabinets or in other high places from which it may fall.

(3) Handle scissors and other office tools with care.

(4) Keep desk drawers and pencil trays free of loose, sharp or pointed objects such as razor blades, pins, etc. Do not throw razor blades in a waste basket unless they are well wrapped and clipped in paper.

(5) Do not leave thumb tacks on floors or in chairs.

(6) Keep desk drawers free of "strike anywhere" matches. Do not place matches with heads exposed in stands.

(7) Do not discard cigarette butts carelessly. Use ash trays or other suitable containers.

(8) Do not carry sharp pointed pencils or unclipped fountain pens in belts, upright in pockets or around the office in your hand or mouth.

(9) Exercise caution when approaching doors and when rounding blind corners.

(10) Do not work directly underneath any light fixture which is being repaired or replaced.

(11) Do not tilt backward with the feet elevated in a swivel chair.

(12) Avoid leaving desk drawers or file case drawers open to be stumbled over.

(13) Before referring to another file drawer in the same cabinet all other file drawers should be closed.

(14) Close desk drawers by grasping handle and not the edge of the drawer.

(15) Close drop head typewriter desk by using the handle.

(16) Close safe and vault doors by grasping handle and not the edge of the door.

(17) When transferring file drawers, remove top drawers first so as to prevent file from becoming top heavy.

(18) Do not sit on open file drawers or waste baskets.

(19) When disposing of broken glass wrap separately in paper, mark plainly, and place beside waste basket or trash container.

(20) Do not use pins for fastening papers together. Use paper clips or staples.

(21) Paper cuts may be serious. When handling papers, pick them up at the corners, not at the side.

(22) Do not climb on chairs, desk drawers, boxes or other makeshift supports in order to reach for something. They are apt to slip or tip and cause you to fall.

(23) Fluorescent lights contain a highly poisonous substance and are therefore extremely dangerous if broken. Care must be taken in their handling, storage, and disposal. The hands and eyes must be well protected if a broken tube is handled.

2. Motor Vehicle Operation

a. Operating Requirements. In addition to the general regulations set out in Section 1 of Chapter I, the following is required for safe operation of motor vehicles.

(1) All operators will be carefully selected and properly trained before being assigned to motor vehicle operation.

(2) Operators will be given careful instruction in Interstate Commerce Commission, State and local traffic rules and regulations governing the operation of motor vehicles.

(3) The operator will be responsible at all times for the legal and safe operation of the equipment he is operating.

(4) All motor vehicle equipment will be kept in good repair at all times.

(5) All motor vehicles will be equipped with suitable hand-type fire extinguishers.

(6) All accidents must be reported immediately.

b. Safe Practices. In addition to the safe practices set out in Section 2 of Chapter I, the following is required for the safe operation of motor vehicles.

(1) Follow other vehicles at a safe distance. If traveling at the same speed as the vehicle ahead, a minimum distance of fifteen feet should be maintained for every ten miles per hour of speed.

(2) Slow the vehicle before, not after, entering an intersection or curve.

(3) Pay attention to driving at all times.

(4) Use proper hand signals to indicate any change in direction and all stops or rapid deceleration.

(5) Observe all traffic regulations.

(6) Do not pass other vehicles on curves or at intersections.

(7) When an emergency vehicle approaches, promptly pull over to the curb away from intersections and stop without blocking the roadway. Remain stopped until all emergency vehicles have passed. Do not follow emergency vehicles or approach the scene of a fire or accident.

(8) Be on the look-out for pedestrians and use horn as needed.

(9) Do not leave vehicle until you are certain that it is properly parked, the motor is stopped and the emergency brake is set and holding.

(10) Do not back vehicle without assurance of right of way. If vision is obscured have someone direct the backing operation.

(11) Be alert when loading or unloading passengers. Do not start until all oncoming passengers are seated and departing passengers are clear of the vehicle.

(12) Be sure that all loads are properly secured.

(13) Report any vehicle defects immediately to the supervisor.

(14) Fire extinguishers attached to motor vehicles must not be used for any purpose except fire fighting. They must be refilled as soon as possible after use.

(15) Report all accidents immediately.

3. Electrical Hazards

a. Operating Requirements. In addition to the general regulations set out in Section 1 of Chapter I, the following is required for safe operation of electrical equipment.

(1) Electrical machines, equipment, wiring for temporary or permanent use, fixtures and all other electrical current carrying devices will be installed, maintained and serviced by competent and qualified workmen.

(2) All current-carrying parts of electrical supply lines, stations, or other installations exposed to possible contact, will be so arranged as to provide adequate clearance or will be provided with guards to isolate them sufficiently.

(3) All circuits will be equipped with fuses of proper size or have circuit breakers adjusted for the designated safe load.

(4) The use of slugs and jumpers for circuit breaking is prohibited.

(5) Adequate and readily accessible working space with secure footing will be maintained about all electric parts or equipment which require adjustment or examination while in service.

(6) Suitable insulating materials or platforms will be placed on floors, and, if necessary, on frames of machines having exposed live parts of more than 150 volts to ground, so that the operator or other persons in the vicinity can not readily touch live parts unless they stand on the insulating materials.

(7) Adequate illumination will be provided in rooms and spaces where electrical apparatus or machinery is located.

(8) The frames and other metallic non-current carrying parts of all portable devices operating at over 60 volts to ground will be grounded.

(9) The frames of generator motors, switchboards, cases of transformers, lightning arrestors, and other electrical equipment operating at more than 150 volts to ground, will be permanently grounded.

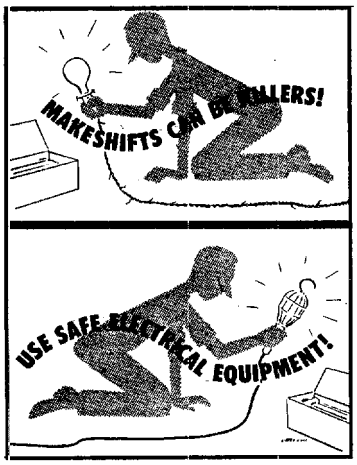
(10) No work will be done on any wiring or equipment, carrying 600 volts or over when operative, until the section or part to be worked upon is protected on both sides by grounds, blocks, bypasses, hold-off systems, or other effective means.

(11) When working poles, two men will work together, one man on the pole, and the other on the ground near the foot of the pole. No man will be permitted to remain on the pole whether working or waiting unless the attendant is in position at the pole base.

(12) Protective devices such as gloves, sleeves, boots, blanket shields, fiber tongs and insulated tools will be made available when necessary for safe operation.

(13) Portable lamp holders consisting of a wooden or rubber insulated handle and lamp cage with all wiring connections and socket parts enclosed should be used for extension lights.

(14) All wiring should be done in accordance with the National Electric Code and also with local codes or requirements.



b. Safe Practices. In addition to the safe practices set out in Section 2 of Chapter I, the following practices are necessary when working around electrical equipment.

(1) Take precaution to cut off current and lock switches before making alterations or repairs to electrical equipment.

(2) When working around dead electric apparatus, observe the same precautions used when parts are alive.

(3) When working on lines which are supposedly dead, ground the lines by using proper grounding equipment at each of the adjacent line poles.

(4) Inspect safety belts, climbers, gaffs, spurs, and other equipment regularly.

(5) When working on electrical equipment where live parts are not enclosed, it is advisable to use only one hand because completing a circuit from one hand to another is more dangerous than from finger to finger on the same hand.

(6) Wear suitable clothing when working on or about live electrical equipment. Keep sleeves down and avoid wearing conductors such as metal watch chains, buttons, visors or the like.

(7) Never leave ground wires leading from electrical apparatus disconnected or broken.

(8) Do not tap live wires except when absolutely necessary. If wires are insulated remove the insulation from only one wire at a time. Do not expose the second wire until the first tap is made and the joint insulated.

(9) When working on hot or live wires take care to stand on dry non-conductive surfaces such as wood planks or insulated platforms.

(10) Take particular care to repair all defective, frayed, or broken insulation immediately.

(11) Use gloves sleeves, boots, and blankets shields made of high grade rubber, insulating mat and platforms, impregnated wooden rods, fiber tongs, and insulated tools as required, when exposure to live electric parts becomes necessary.

(12) Inspect all personal protective equipment each time before use, and if found defective, remove from service until repaired or replaced.

(13) Do not turn on electricity or operate any electrical apparatus without first making sure that no one is in a position to be injured.

(14) Always lock switch boxes or hang danger sign after pulling fuses and before starting work on a circuit.

(15) Always remove fuses before working on any circuit. Do not trust the switch.

(16) Never use fingers or metal pliers for installing fuses. Use fiber pliers.

(17) All electrical hand tools and equipment must be equipped with a three pronged plug, or separate ground wire with alligator clip for proper grounding.

4. Flammable Liquids

a. Operating Requirements. In addition to the general regulations set out in Section 1 of Chapter I, the following is required for safe handling of inflammable liquids:

(1) They shall be confined to approved closed containers.

(2) Class 1 liquids, such as ethyl ether, acetone, gasoline, benzol, etc., except when in small sealed containers or approved safety cans, will be stored outside in underground or above ground tanks or containers.

(3) Liquids should be stored only in designated containers, and containers so marked should not be used for liquids other than those specified. They should be kept clean so that markings and colors may be easily distinguished.

(4) To preclude the possibility of electric sparks occurring as a result of static electricity, bonding and grounding should be provided at all points where flammable liquids are stored, used, or transferred and when containers are being cleaned.

(5) Explosion proof motors and properly enclosed electrical apparatus only should be used where such equipment is subject to exposure to fumes from flammable liquids.

(6) Non-sparking tools should be used where flammable liquids are stored and used.

(7) Proper ventilation will be provided to remove toxic fumes.

(8) Tank trucks used for the transportation of flammable liquids should be of approved construction and operated according

to the regulations of the Interstate Commerce Commission Motor Carrier Safety Regulations, Part 7, and the Tank Truck Ordinance of the National Fire Protective Association.

(9) Cabinets may be used to store no more than fifty gallons of flammable liquids as long as no individual container exceeds five gallon capacity. Cabinets should be made of at least eighteen gauge sheet iron with double walls allowing a one and one-half inch air space. Doors should be kept closed when not in use and door sills should be at least two inches above the floor. The cabinets should be identified with a suitable sign painted in red, and should be provided with vents and preferably placed outside a building.

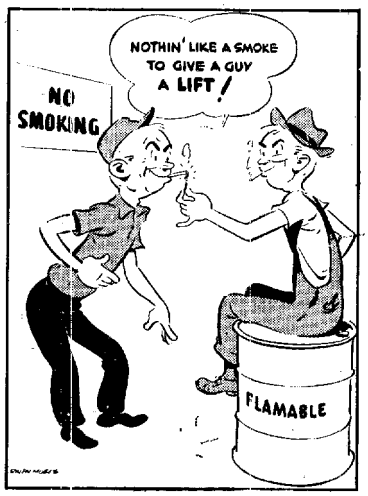
(10) Outside storage houses should be constructed in keeping with the nature of the product stored and the proximity to other buildings or structures.

b. Safe Practices. In addition to the safe practices listed in Section 2 of Chapter I, the following practices are required for the safe handling, use and storage of flammable liquids.

(1) In pouring flammable liquids from one container to another the lip of one should rest on the edge or lip of the other, set on a grounded surface and the two should be kept in contact with each other during the pouring.

(2) Replace taps, plugs and bungs of drums and barrels and other containers immediately after use and when empty.

(3) Smoking or the carrying of flames of any kind will not be permitted in any building or area where flammable liquids are stored, handled or used, nor permitted within the proximity of any loading or unloading operation.



(4) Gauge a storage tank before filling to avoid the fire hazard of an overflow.

(5) Hoses, funnels and measuring cans used for Class 1 liquids should be drained and dried before being stored.

(6) Empty oil barrels, cans and other containers should be removed from the premises as promptly as possible.

(7) Small quantities of Class 1 liquids may be dispended, but only in approved suitably marked metal safety cans with tight covers.

(8) Never transfer flammable liquids in the presence of any flame or burning material including cigarettes.

(9) Report leaky faucets, valves, pumps or hoses immediately.

(10) Do not use compressed air for emptying liquid from a container.

(11) Do not use gasoline or other Class 1 liquids of any type to clean parts, hands, etc. Approved cleaning solvents should be used for this purpose. After handling flammable liquids, wash hands thoroughly before eating.

(12) Do not fill or drain gasoline tanks inside a building. Drain only into grounded, approved safety cans.

5. Machinery

a. Operating Requirements. In addition to the general regulations set out under Section 1 of Chapter I, the following is required for safe practices in machine shops:

(1) Gears, pulleys, belts, couplings, ends of shafts having keyways and other revolving or reciprocating parts will be guarded to a height of six feet above the floor. The guards should be removed only for repairing or adjusting the machine and they should be replaced before operating. Safeguard construction, design and use depend to a great extent on many of the following summarized characteristics. Generally speaking a guard should:

(a) Provide positive protection.

(b) Prevent all access to the danger zone during operations.

(c) Cause the operator no discomfort or inconvenience.

(d) Not interfere with production.

(e) Operate automatically or with minimum effort.

(f) Be designed for the job and the machine.

(g) Preferably be a built-in feature.

(h) Provide for machine oiling, inspection, adjustment and repair.

(i) Withstand long use with minimum maintenance.

(j) Resist normal wear and shock.

(k) Not constitute a hazard itself (without splinters, sharp corners, rough edges, or other sources of injury).

(l) Protect against any contingency, not merely against normal operations.

(m) Conform with the provisions of American Standards Association Codes.

(2) Safety set screws should be used in collars.

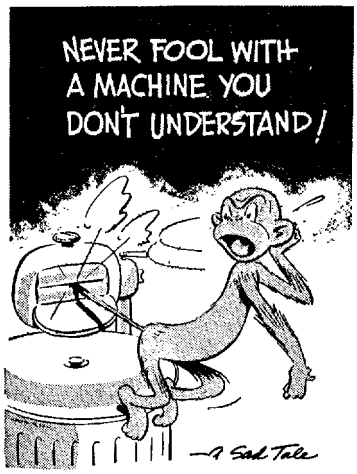
(3) Each power tool will be provided with an individual control switch or belt shifter easily accessible to the operator.

(4) Wheels and saws will be operated at the safe speed for which they are designed.

(5) Only "safe" lathe dogs, chucks, and drill spindles will be used. Only counter set screws will be used.

b. Safe Practices. In addition to the safe practices listed under Section 2 of Chapter I, the following additional safe practices are required for machine operations.

(1) Do not start or attempt to operate a machine until familiar with how it works and its dangers have been fully explained by a qualified person. Ignorance causes as many accidents in the machine shop as carelessness.



(2) Loose or torn clothing, particularly loose or torn sleeves, flowing necktie or a flapping belt end, should not be worn when

operating a power driven machine. Never wear gloves when operating a machine unless absolutely necessary.

(3) Do not start a machine while it is being adjusted or repaired.

(4) Metal chips, turnings or shavings should not be removed by hand. They should be removed with a brush.

(5) Lock and tag machines under repair or adjustment so that they can not be started accidently.

(6) Report any guard that is not adjusted properly or working perfectly. Don't "cheat" the guard by tieing it down, blocking it, or otherwise making it inoperative.

(7) If it is necessary to reach between moving parts, use a hook, stick, tongs, jig, or other accessory.

(8) Do not permit power tools to run unattended. Do not let anyone handle the starting button or lever of your machine while you are working on it, and do not tamper with the controls of a machine on which someone else is working.

(9) Goggles should be worn when grinding, shaping, or when doing any work that endangers the eyes.

(10) Drill Presses.

(a) Oil the drill press as directed by the manufacturer's manual at least twice every day.

(b) When drilling a hole do not let the spindle feed beyond its limit of travel.

(c) Never attempt to hold the work under the drill. Clamp it to the table securely.

(d) Avoid forcing or feeding the drill too fast. Broken or splintered drills have caused serious injury.

(e) Never leave wrenches in chucks.

(f) Fingers, cotton waste or rags must not be used to brush chips away from the drill. Use a stick or brush.

(g) Never wear gloves when operating a drill press. Gloves may be worn when handling rough material and then only when the drill is not running.

(h) If by chance the work slips from clamp, never attempt to stop it with your hands.

(i) Keep fingers, head, and arms away from the tools that are in motion.

(j) Use only drills that are properly sharpened.

(11) Lathes.

(a) Do not file work while the back gears are in; the spindle speed is usually too slow to keep the work sound and the work is moving with too much force to stall if anything gets caught in it.

(b) All operators' sleeves should be snugfitting or cut off above the elbow.

(c) Loose fitting or ragged shop clothes are extremely dangerous.

(d) The greatest hazard in operating a lathe is that of being caught by the revolving stock or by the revolving chuck. Keep hands and clothing away from the stock or chuck when in motion.

(e) Whenever chucks or plates are changed and new ones put on they should be started on the spindle by hand power. After adjusting a chuck always be sure to remove the chuck wrench immediately.

(f) Select a tool that is suited to the job. Make sure it is in good condition, fit it properly in the tool post and secure it firmly. See that the tool is not set for an excessively deep cut or too rapid feed and see that work is counterbored to a sufficient depth to prevent it being torn loose.

(g) Be sure that the lathe spindle fits its bearings and that the carriage is not loose. Do not attempt to change or adjust machine tools while machine is in motion.

(h) Be careful of slippery floors around a machine. Use a floor mat or other non-slipping device.

(12) Milling Machines.

(a) Before setting up a job be sure that the work, the table, the bore, the spindle and the arbor or cutting shank are all clean and free from chips, nicks, or burrs.

(b) Set up every job as close to the machine column as the circumstances permit.

(c) Do not select a cutter of larger diameter than is necessary and keep cutter sharp at all times.

(d) Do not change feeds or speeds while the work is being cut.

(e) Always lower the table before backing the work under a revolving cutter.

(f) Feed the work in a direction opposite to the rotation of the cutter, except when milling long or deep slots or when cutting off stock.

(g) Never run a cutter backwards.

(h) When using clamps be sure that they are tight and that the work is held so that it will not spring or vibrate under cutting.

(i) Use a recommended coolant liberally.

(j) Secure cutter on arbor before starting machines. Tighten arbor nut by hand and not by power.

(k) Keep hands away from work when machine is running.

(l) Keep chips away from the table and around the work; brush them out of the way by any convenient means but not by hand.

(m) Don't feed the table too far in any direction.

(n) Don't feed the knee too far up or down.

(o) Don't feed the saddle against the column or too far out from it. Never reverse the machine while it is running.

(p) Take care that all clamps and clamp bolts are low enough to pass under the arbor and cutter.

(q) Be careful not to allow a brush, rule or anything else to get between the cutter and the work while taking a cut.

(r) Keep the machine thoroughly oiled as directed by manufacturer's manual.

(13) Power Press

(a) After oiling and before feeding, operate the press until satisfied all parts are working properly. If anything is not in order tell your supervisor.

(b) Make sure that guards and safety devices are in place.

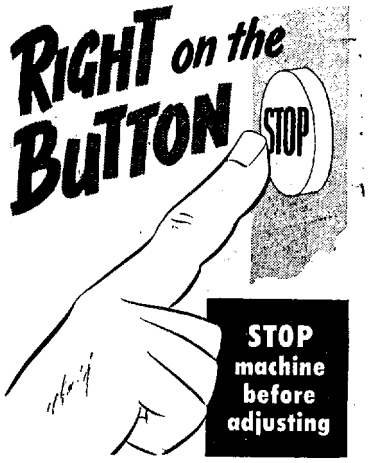
(c) Use the attachments and special tools provided for the feeding or removal of parts. Never put your hand under the ram.

(d) If material sticks in the die do not remove it with your fingers. Use a stick or a soft metal tool.

(e) Do not pull tripping rods or tamper with safety devices.

(f) Do not wear gloves unless advised to do so by your supervisor.

(g) Stop the press before oiling, adjusting, or repairing. Make sure no one can start it while you are working on it.



(h) Keep your mind on your work; never distract the attention of other operators.

(i) If you leave your press inspect it thoroughly on your return to make sure no pieces are in the die and that all is in good order.

(14) Shapers

(a) Be sure that the cutting tool is tight in the tool post before taking a cut.

(b) Be sure that the work as well as all clamps, bolts, etc. are low enough for the ram to clear them. When setting the ram for length of stroke be sure the ram does not strike the column on the return stroke. Operate the shaper by hand for a couple of strokes to determine this before turning on the power.

(c) When the tool slide is set off from the vertical, check the clearance by revolving the shaper by hand to prevent the slide from striking the column.

(d) Do not raise the table while the shaper is running.

(e) Be sure that the work is held tightly. When heavy cuts are being taken, prevent the work from slipping by setting it up against stops bolted to the machine table.

(f) If the shaper has back gears never change gears with out stopping the machine.

(g) Keep the hands away from the machine table while the shaper is cutting and never try to reach across the table between strokes of the tool. Because chips often fly from work being shaped, it is good practice always to wear goggles.

(15) Grinders

(a) Be sure that the proper guard is in place.

(b) Use the tool rest. Adjust tool rest close to grinding wheel.

(c) Stand to one side when starting grinding wheel.

(d) Do not "crowd" a grinding wheel. Cold wheels are particularly dangerous. Pressure should be applied gradually giving wheel a chance to warm up.

(e) Do not operate a grinder at a speed higher than that specified in the safety code for the use, care and protection of abrasive wheels.

(f) Be sure that all grinding wheels are held firmly on their arbors. The inner flange should be keyed or otherwise fixed to the spindle; the outer flange should bear on the wheel at its outer edge through thick, soft paper or rubber and the wheel should run true.

(g) Always wear protective goggles when operating a dry-grinding abrasive wheel.

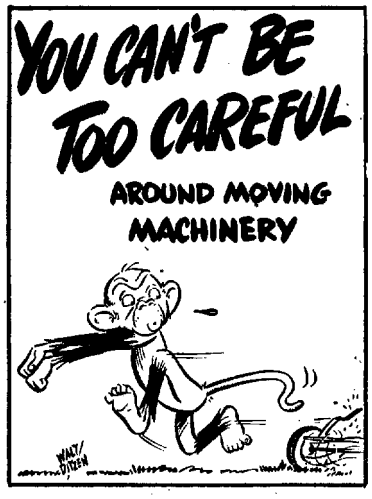
(16) Metal Shears and Metal Cutting Saws

(a) Be sure that proper barriers and guards are in place.

(b) Be sure that stock is held securely.

(c) Wear goggles if there are flying particles of metal.

(d) Keep hands away from moving blades.



6. Chemical Hazards

a. Operating Requirements. In addition to the general regulations set out in Section 1 of Chapter I, the following is required for handling of dangerous chemicals.

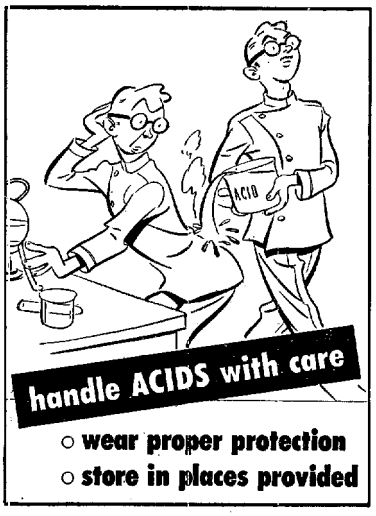
(1) Liquid chemicals should be stored in a safe, isolated and well ventilated area.

(2) A minimum of liquid should be kept at the point of operation.

(3) Different materials should be stored separately in designated areas. Each container should be clearly labeled.

(4) Separate containers should be provided for corrosive or poisonous liquids.

(5) Hand containers for carrying flammable liquids will be of the approved safety type.



(6) Personal protective equipment, such as emergency showers, rubber gloves and aprons, etc., will be available wherever dangerous chemicals are being handled.

b. Safe Practices. In addition to the safe practices set out in Section 2 of Chapter I, the following practices are necessary for the safe handling of dangerous chemicals.

(1) Avoid all skin contact with liquid chemicals. Large quantities of water will usually remove a chemical from the skin.

(2) Do not pour by hand or start pipettes or siphons by suction of the mouth.

(3) When a carboy has been emptied of acid, it should be washed out and tagged to denote that it is empty and clean.

(4) Do not handle bottles by the neck.

(5) When opening a fresh container turn the face partly away from it to protect yourself from a sudden spurt of the chemical.

(6) When pouring acids, use both hands and avoid spills.

(7) When mixing acids and water always add the acid to the water and very slowly.

(8) Never try to force a glass tube or rod through a hole in a rubber stopper without having the hand protected by a glove or cloth.

(9) Fire-polish the ends of all glass rods and tubes.

(10) Keep acids, gases and vapors confined to the hoods.

(11) Never put a hot crucible in water or acid and never throw a hot syphon into acid or water.

(12) Wear the protective equipment furnished you.

(13) Know the fire and toxic habits of the substances you are handling and know the necessary first aid measures.

7. Film

a. Motion Picture Projection Rooms and Film Storage. Projection rooms and cabinets and vaults for film storage will be constructed according to the National Fire Protection Association standards. Nitrocellulose film will be stored and handled in accordance with the following rules:

(1) Amounts in excess of 25 pounds (5 standard rolls), but not in excess of 1000 pounds, shall be kept in approved cabinets if not in vaults.

(2) Amounts in excess of 1000 pounds shall be kept in vaults.

(3) Storage for any considerable length of time should be in vaults only.

(4) Unexposed film when stored shall be enclosed in the original shipping cases, conforming to Interstate Commerce Commission regulations, with each roll in a separate container, and shall be kept in a sprinklered room; if over 5 cases aggregating in excess of 750 pounds (150 standard rolls) it shall be kept in a sprinklered room used for no other purpose.

(5) Every room in which film is stored or handled, except film vaults, shall be provided with fire extinguishers of types using water or water solutions.

(6) Film in cabinets shall be in individual containers or in Interstate Commerce Commission shipping containers. Materials other than film shall not be stored in the same cabinet with film.

(7) Film shall be kept in closed containers at all times except when being used or being worked on.

(8) Film shall not be placed or kept under benches, tables, or other surfaces which would shield it from the discharge of sprinklers.

(9) Scrap film shall be kept separately from waste paper and other rubbish and shall be kept under water until disposed of.

(10) The quantity of film in any projection or rewinding room shall be limited to 75 pounds. Up to 40 pounds may be kept in Interstate Commerce Commission shipping containers, or approved cabinets. Amounts in in excess of 40 pounds should be kept in an approved cabinet.

(11) No collodion, amyl acetate or other similar flammable cement or liquid in quantities greater than one pint shall be kept in the projection booth or rewind room.

(12) All electrical wiring and equipment in rooms where film is stored or handled must conform to the National Electrical Code.

(13) Smoking is prohibited where film is stored or handled.

(14) Splices in film shall be made on mechanical cutting and splicing machines.

8. Garage

a. Operating Requirements. In addition to the general regulations set out in Section 1 of Chapter I and in the sections covering machine shop, flammable liquids, welding, painting, tools, etc., and any other safety requirements which are normally observed, the following is required for safe garage operation.

(1) Effective general ventilation will be provided in buildings where automobiles or other gas engines are running. Exhausts should be properly vented to the outside.

(2) Special metal containers with metal covers will be provided for waste, oily rags and other flammable material.

(3) Suitable fire extinguishers will be accessible to all operations involving flammables.

(4) Each power tool will be provided with an individual control switch or belt shifter easily accessible to the operator.

(5) Premises will be kept clean and free from tripping hazards. Proper storage will be provided for air and water, hose, tools, jacks, water cans, and all other movable objects.

(6) Personnel will not be allowed to remain in a car while it is being raised on a lift.

(7) If a lift is located in a building, sufficient overhead clearance will be provided for maximum extended height of the lift and load.

(8) Attendants only should be allowed in pits. Pits should be protected with suitable guard chains or rails.

(9) Only properly installed and maintained vapor proof electrical equipment should be used in pits.

b. Safe Practices. In addition to the safe practices listed in Section 2 of Chapter I and the sections of Chapter II covering machine shops, flammable liquids, welding, painting and tools, etc., and any other safety practices which are normally observed, the following practices are required for safe garage operations.

(1) When working with a portable electric tool, particularly when in a damp or oily place, check the insulation on the extension cord. Be sure tool housing or framework is grounded.

(2) Store waste, oily rags and other flammable material in suitable metal receptacles provided for that purpose.

(3) Block all work under which you have to work. Never depend on jacks or chain hoists alone to support the load. Place the blocks as load is raised.

(4) Be sure your feet and all other parts of your body are clear of passing vehicles or moving machinery when working under a vehicle.

(5) Do not keep gasoline in open containers.

(6) Use safety grip (thumb and fingers on same side of handle) when necessary to crank engines by hand.

(7) Be on guard against flashes or explosions of gasoline vapors, anti-freeze solution vapors and hydrogen from storage batteries. Keep flames, sparks and hot surfaces away.

(8) If your clothes become soaked with oil or gasoline, change them immediately. Do not risk catching on fire.

(9) Never allow grease or oil to remain on the floor.

(10) Keep passageways free of tools and other objects.

(11) Only qualified operators will be authorized to use power tools.

(12) Start power tools only when they are in proper adjustment and when all safety devices are in place. Do not remove or alter safety devices.

(13) Do not permit power tools to run unattended. Stop them while listening to instructions.

(14) When guiding a car to the lubrication rack or lift, do not stand in front of car where you may be crushed. Be sure that the ignition is turned off, the gear shift is in neutral and the wheels are blocked before starting lubrication service on a car or operating a lift.

(15) Never raise a loaded truck on a lift. After lift has been raised, put safety bar in place.

(16) Before lowering a lift, see that it is properly positioned, that everyone is in the clear, and remain at the control valve while the car is being lowered.

(17) See that all is clear before the car is backed off the lift or pit.

(18) When operating a lubricating gun never shoot grease at any part of the body or point the gun toward anyone else. Grease expelled from a high pressure gun may puncture the skin and cause infection.

(19) Use wrenches that fit and are a proper length. Take time to use them correctly.

(20) Grease on tools or on the hands may cause the tools to slip. Clean tools with kerosene or approved cleaning solvents.

(21) When using a bar on springs work the bar away from your face. Make certain your body is braced and that you have good footing.

(22) Do not use compressed air to clean machinery or clothing.

(23) Never commit an act of horseplay involving compressed air.

(24) Before working under a raised hood or truck cover make sure that the safety catch is securely fastened.

(25) When giving service from the gasoline pumps stand so that your feet and body are clear of the car in case it starts to roll.

(26) Do not use gasoline of any type to clean floors, your hands, or automobile parts. After handling motor fuel, wash hands thoroughly before eating.

(27) Shut off the engine of a motor vehicle and set hand brake before giving air service or refueling.

(28) Place gasoline hose nozzle firmly in automobile tank, making sure there is contact between nozzle and tank.

(29) Make sure that tank does not overflow. Remove the hose nozzle only after flow of gasoline has stopped. Immediately replace the tank cap.

(30) Keep face away from tank opening when making deliveries.

(31) Do not use a lighted match to look into a radiator.

(32) If a radiator is steaming, keep the motor idling, lay a large rag over the cap to protect your hands, and allow the steam to escape gradually before removing cap entirely, then add water slowly.

(33) Use particular care when working on heavy truck tires or when any tire is badly worn or damaged. Keep hands from between dual tires when gauging or inflating. Be sure locking rings are secure.

(34) When inflating a tire that has been removed from a truck, either securely loop a strong chain around tire and rim or lay the wheel and tire on the ground or floor with the ring down.

(35) Turn off the air compressor motor switch before oiling, wiping, or working on the compressor.

(36) Inspect the air compressor tank gauge daily to see that it is registering, that allowable pressures are not exceeded and that kick off pressure is normal. Never tamper with adjustment of air safety valve or kick off switch.

(37) Do not hammer or tinker with a compressor tank when it is under pressure.

(38) Keep clamps tight on air hose.

(39) Release all air from air hose before disconnecting from the compressor.

(40) Use only non-flammable cleaning compounds to clean pits.

(41) Keep steps to lubrication pits free of wrenches and other objects and clean of grease and oil.

(42) Keep pit drains clean.

(43) Use battery service equipment to avoid splashing or spilling of acid.

(44) Never attempt to blow off loose particles or corrosion on the top of a battery by mouth or air hose. Use a brush.

(45) Do not wear rings while servicing a battery as severe burns may result.

(46) Keep lighted matches, cigars, cigarettes and all open flames away from batteries.

(47) Keep hands away from face while servicing battery and wash thoroughly when through.

(48) Use battery tongs or other appropriate carrying devices when removing or lifting batteries.

(49) Hoses, funnels and measuring cans should be drained and dried before being stored.

(50) Empty oil barrels, cans and other containers should be removed from the premises as promptly as possible.

(51) Leaky faucets, valves, pumps or hoses must be repaired or replaced immediately.

(52) Small quantities of gasoline to be carried away will be dispensed only in approved metal safety cans with tight covers suitably marked.

(53) If pumps are electrically driven, make sure pump motor is shut off after delivery is completed. Always hang the hose

up after each delivery. If the pump is of a visible flow type, gasoline will be drained before closing.

(54) Unless you are in a pit, work under a car only when it is properly blocked.

(55) In soldering operations, hold the iron in the right hand in such a position that the iron is at right angles to the solder held in the other hand. Grip the iron securely to prevent it from slipping from your grasp in the event the tip slips at the point of operation.

(56) When cleaning excess solder from the iron tip, wipe it off on a pad or on fire proof muslin. Never flip or toss the excess solder from the tip by snapping the iron.

(57) When testing iron temperature use solder, never hold the iron near the face to test it.

(58) Clothing which protects the body from solder splashes should be worn.

(59) When soldering, operator should use an exhaust if one is provided to exhaust properly the lead fumes.

(60) Never use a soldering iron or welding torch on a liquid fuel container or tank until it has been drained, washed, steamed, or otherwise thoroughly cleaned and purged of all flammable gases and liquids.

(61) Before using a blow torch make sure that it is in good condition.

(62) Do not attempt to fill the torch while it is hot.

(63) Avoid too much air pressure in the torch.

(64) When starting the torch wait until the gasoline in the priming cap is nearly consumed. Hold lighted match at vent holes of the combustion chamber.

(65) Place the torch where it cannot set fire to anything. Never leave a burning torch unattended.

(66) Avoid wearing greasy or oily clothing and do not use the torch in unventilated places.

(67) Wear goggles, rubber gloves, aprons, boots, and special industrial type gloves as needed.

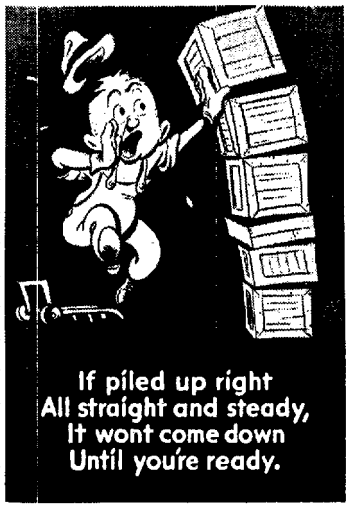
(68) It is recommended that safety shoes be worn.

9. Warehouses - Material Handling and Storage

a. Operating Requirements. In addition to the general regulations listed under Section 1, Chapter I, the following is required for safe operation in material handling and storage.

(1) Runway sections will be used to bridge the space between the railway car door and a loading platform. These sections should be bolted or cleated to prevent them from shifting or falling.

(2) Materials should not be placed in such position that lanes between docks, buildings, ramps or platforms and railroad trackage adjacent thereto may be obstructed.



(3) Where pallets are not used, extra care should be required to stack material carefully. Tiers should be aligned and dunnage used where necessary to insure a balanced stack.

(4) Dunnage should be placed in such manner that it does not extend beyond the sides or ends of stacks.

(5) Bagged goods should be stacked by employing the "key-bag" method of stacking, cross typing correctly. Stacks generally should be as high as the floor load and nature of the commodity permit. Stacks of commodities that creep should be inspected frequently for stability.

(6) Clearance of supplies between top of the stack and the lower edge of the roof rafters or ceiling joists will be twenty-four inches where stack heights are fifteen feet or less and thirty-six inches where stack heights are over fifteen feet. Where stacking is up to or above the level of electric light fixtures, clearances on all sides of such fixtures will be twenty-four

inches. Light bulbs suspended on drop cords in storage locations will be enclosed in wire guards. Where electric wiring is installed either open or in conduit and is exposed to machanical injury, clearance from supplies will be eighteen inches. A clear space of twenty-four inches will be left between stored combustible supplies (all supplies which can catch on fire and burn) and sub-standard interior fire walls. A clear space is not mandatory between stored supplies and standard interior fire walls. Material will be stacked at least twenty-four inches below sprinkler heads.

(7) When mobile equipment is used:

(a) Select the type of truck most suitable for the work at hand. No one truck is right for handling all types of materials.

(b) Aisles or truck runways should be well defined.

(c) Aisles should be kept clear of overhanging or projecting obstructions.

(d) Care should be exercised by operators at blind corners where there may be other traffic.

(e) All floors and pavements should be kept in good repair.

(f) Fork lift trucks should be equipped with a fork catch guard attached to the elevating device to prevent the load from falling on the machine or its operator. Overhead guards will be required as added protection.

(8) Overhead Bridge Cranes

(a) Each hoist should be equipped with a brake device

which will automatically lock the load when hoisting is stopped.

(b) Frequent periodic inspection tests and adjustment should be made of all brakes, machinery, apparatus and appliances connected with a crane.

(c) A clearly legible sign showing the maximum permissible load should be placed conspicuously on all hoisting equipment.

(d) When a crane is not in use the operator should throw all controls in "off" position and open the main switch.

(e) The movement of any crane while handling material or doing repair work should be governed by a standard code of signals.

(f) Employees who work near cranes or who assist in hooking on or arranging loads should keep away from under the load. When unavoidably in such a position, they should give close attention to warning signals and should move promptly to safe places.

(g) Only trained employees will operate a crane.

(9) Elevators. The installation, maintenance, and inspection of elevators will conform to the "Elevator Code" of the American Standards Association and with state and local codes.

(10) Boilers. The installation, operation, and inspection of steam boilers must conform to the requirements of the Boiler Code and of the American Society of Mechanical Engineers. Only trained employees will operate a boiler.

b. Safe Practices. In addition to the safe practices listed in Section 2 of Chapter I, the following practices are required for safe material handling and storage:

(1) Lifting.

(a) Do not attempt to move or lift extremely heavy objects without the aid of rollers, hoisting tackle or mechanical equipment.

(b) Ask for help when because of excessive weight, bulk, or awkward shape the load can not be handled easily by one person.

(c) Remove greasy or other slippery substances from the hands. Get a good hand hold.

(d) Be sure you have good footing, then lift with a smooth even motion.

(e) When lifting a heavy object shift the body until you are in position to make a straight lift. Never lift while you are in an awkward position.

(f) When making a lift from the floor keep your arms and back as straight as possible. Bend your knees and lift with the leg muscles.

(g) When it is necessary to lift objects from an elevation such as a bench, table, or shelf, bring the object as close to the body as possible to avoid unbalanced position. Keep the back as nearly vertical as possible and lift with the leg muscles.

(h) In two man teams lift simultaneously and avoid changes in levels which throw undue strain on one man.

(2) When rollers or conveyers are used keep hands and feet clear.

(3) Avoid standing under a suspended load or in the path of a swinging load.

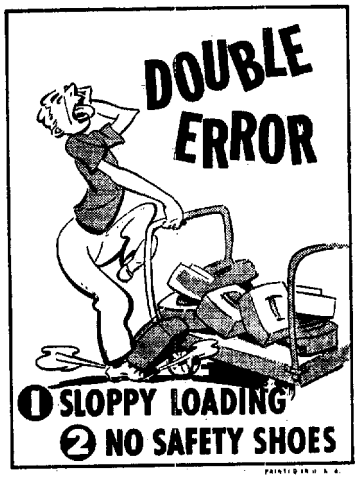
(4) Block or nest to prevent rolling of cylindrical objects stored in a horizontal position.

(5) Keep platforms and aisles clear of obstructions such as tools, trucks, or material.

(6) When placing cases on pallets for stacking, place them squarely and carefully.

(7) Avoid taking down a stack in such a way that trucks, pallets, or section posts block avenues of escape if stack should slide.

(8) Load hand trucks so you can see over and around the load. Watch where you are going when pushing or pulling a hand truck. It is usually best to push a hand truck. Keep the load in balance to avoid objects sliding or falling off. Consider door and aisle widths in loading.



(9) Park hand trucks with handles in vertical position. Do not leave in locations where fellow workers will stumble over them.

(10) Remove all protruding nails from boxes, barrels and cases before unpacking supplies.

(11) Do not throw scrap lumber on the floor where it may create a tripping hazard.

(12) Keep flammable packing materials in closed bins provided for this purpose, except for quantities in immediate use.

(13) Keep aisles and exits clear at all times. Do not block or otherwise make fire door inoperative.

(14) Get help when going up or down a ramp with a heavy load.

(15) Keep well clear of the edge of the ramp.

(16) Box car doors should be pushed open instead of pulled open. When opening and closing a box car door be sure that the door is held securely to hanger or rail. First open the door slightly to make sure nothing is going to fall out. Keep fingers in the clear in closing door.

(17) Check contents of railroad cars for unsafe position of loads before starting to unload.

(18) When operating fork lift equipment observe the following:

(a) Only qualified operators who have been properly instructed will operate fork lift equipment.

(b) Do not carry passengers.

(c) Load carefully.

(d) Keep base of top units of load well below framework of carriage guard and do not overload.

(e) Before raising load make sure there are no obstructions such as sprinkler lines, heating units, electric fixtures, or cross beams.

(f) Lift the load slightly backward to prevent dropping cases. Always carry the load against the boom.

(g) Lower the load to within four inches of the floor before starting. Always lower smoothly without jerks.

(h) When moving watch the way carefully; take corners slowly, and sound horn or other warning device at all corners and cross aisles. Use hand signals to indicate change of direction or stop.

(i) Travel in reverse when loaded except when ascending an incline.

(j) When placing a loaded pallet on a high stack, exercise caution when tilting the boom forward.

(k) Be sure the emergency brake is set, the gears disengaged, and the forks lowered flat against the floor when you park.

(l) Do not leave controls while motor is running.

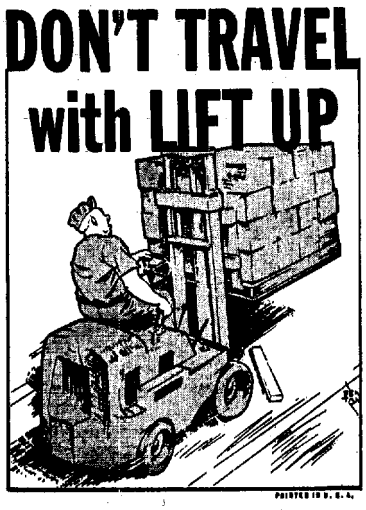
(m) Keep a safe distance behind other vehicles. Your truck must be under control at all times.

(n) Watch in the direction you are traveling and never back up without looking.

(o) Do not use the reverse control for braking.

(p) Remove moisture and grease from hands before driving; slow down for wet or slippery floors.

(q) Do not drive high lift trucks with the platform elevated.



(r) Avoid bumping into objects especially in backing and keep inside the running lines of the truck.

(s) Gasoline tanks on lifts will be filled in the open air and care exercised that the filling hose and equipment are properly grounded. If gasoline tanks are to be drained they should be drained at suitable locations and grounded standard self-closing safety cans used.

(t) Proper protective clothing should be worn when handling and charging storage batteries for electric trucks. Chains, hooks, and other parts of hoisting mechanism should be insulated so as to avoid possible short circuiting. Open flames and smoking should be prohibited in battery charging rooms.

(u) Gasoline powered trucks should be stored in designated storage places removed from combustible materials. Electric trucks should be stored in the battery charging rooms.

(19) When operating an elevator the following rules should be observed.

(a) Before opening doors or gates be sure car is level with the landing and controller is in neutral position.

(b) Always open control switch or lock the cable while loading or unloading.

(c) Do not start elevator until doors are fully closed and latched - unless automatic gates are used.

(d) Promptly report any defective condition.

(e) Bring car to a full stop before reversing direction.

(f) Never block hoistway gates open.

(g) Know the safe capacity of your elevator and never overload it.

(h) Learn to level the car without unnecessary "inching" and save wear on cables and machine.

(i) Permit no unauthorized person to operate the elevator.

(j) Hand trucks or other objects likely to shift should be blocked before moving the elevator.

(k) Do not permit crowding in the car; require passengers to face the entrance and to remain at a safe distance from it.

(20) When operating a steam boiler observe the following rules:

(a) Do not place a boiler in operation until you know that it has been properly inspected and is in good operating condition.

(b) After the fires have been started on the boiler the steam pressure should be raised very slowly during which time examination should be made for leaks and the safety valves tested by hand when nearing operating pressure.

(c) Be sure that your water level is correct.

(d) All boilers should be blown down at least once every week.

(e) Watch your steam gauge and be sure that steam is being maintained at the correct pressure.

(f) Test each safety valve at least once every twenty-four hours by raising the steam pressure to the blow-off pressure.

(g) Be sure that all necessary guards are in place on moving parts of stoker.

(h) Maintain good housekeeping and avoid slipping or bumping into heated equipment.

(i) Wear the necessary protective clothing required for the job.

(21) When operating a crane the following rules should be observe:

(a) Prohibit the riding of loads.

(b) Maintain at least two full turns of cable on the drums at the limits of travel.

(c) Avoid where possible swinging loads over the heads of workmen.

(d) The boom should always be directly over the load when making a lift. If objects must be moved from the sides of the boom, use snatch-blocks to move them into the proper lifting position.

(e) Use tag-lines on free-swinging loads.

(f) Prevent loads from striking objects or structures.

(g) Make frequent inspections of ropes. Keep them lubricated and have them replaced when weakened by wear, breakage, rust or corrosion.

(h) Prohibit oiling or repairs while the crane is in operation. Move all controls to "off" position and remove fuse.

(22) Wear gloves or hand pads when handling rough material. The wearing of safety shoes is recommended.

(23) Avoid pinching fingers between an object and a truck, wall or other objects.

10. Hand Tools and Portable Power Tools

a. Operating Requirements. In addition to the general regulations set out in Section 1 of Chapter I, the following is required for safe use of hand tools.

(1) Tools designed for the work required should always be available.

(2) Only good quality tools should be used.

(3) All tools will be maintained in good order. Defective tools which cannot be repaired will be discarded.

(4) Storage facilities will be provided so that tools can be stored safely and maintained in good order.

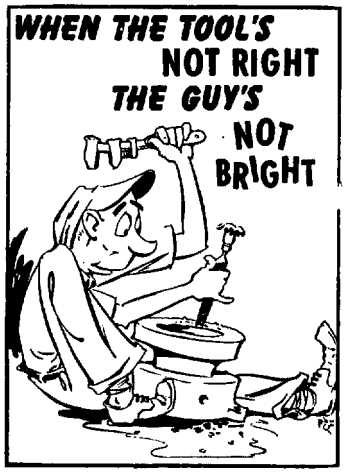
(5) Handles should be provided on all files.

(6) Necessary protective equipment will be made available.

(7) Tool boxes with separate compartments and suitable shields or guards will be provided.

b. Safe Practices. In addition to the safe practices listed in Section 2 of Chapter I, the following practices are required for safe use of hand tools.

(1) Use the right tool for the job. Do not use a tool for a job for which it is not designed.



(2) Never use a defective tool. Be sure that handles are well secured and smooth, that striking surfaces are free of burrs, cracks and chips and that edged tools are sharp.

(3) Handle tools with a firm grip and keep them clean of oil and dirt for better control.

(4) Have the feet well set, and face, hands and body out of the path of force of the tool movement in the event a tool slips. Take a practice stroke to determine clearance.

(5) Use proper size and style of wrench to prevent slipping and to provide sufficient leverage. The wrench should be pulled toward the user not pushed away and the pull should force the jaws into the nut bolt, etc.

(6) Use goggles where particles of matter may be caused to fly.

(7) Wear gloves or other hand protective equipment when they do not interfere with a secure grip on the tool.

(8) If tools are carried in the hands, they should be carried with points and cutting edges down and away from the body.

(9) Never throw a tool.

(10) After use, always return a tool to a safe place. Do not leave tools loose in the work area so as to be a tripping hazard.

(11) Use non-sparking tools when working around easily ignitable substances.

(12) Use tools with insulated handles when working on electrical equipment.

(13) When using a portable power grinder:

(a) Do not grind with the side of a flat wheel.

(b) Grind only on work that cannot move.

(c) Hold grinder securely in both hands.

(d) Shut off the power when not grinding and be sure that the wheel has stopped revolving before putting it down.

(e) Always wear goggles.

(f) Be sure the tool is grounded.

(14) When operating a portable power drill:

(a) Be sure work is secure.

(b) Never hold work in hand.

(c) Use only as much pressure as necessary. Undue pressure may cause the drill to heat or break.

(d) Keep the hands away from the drill bit.

(e) Always wear goggles.

(f) Be sure that the tool is grounded.

11. Carpentry

a. Operating Requirements. In addition to the general regulations set out under Section 1 of Chapter I, the following is required for safe carpentry operations.

(1) Provision should be made for the frequent removal of sawdust, chips and shavings from machinery and surrounding areas.

(2) Standard metal containers will be provided for oily rags and other flammable material storage.

(3) Each power tool should be provided with an individual control switch or belt shifter easily accessible to the operator.

(4) Point of operation guards shall be provided on all wood working machinery. Gears, pulleys, belts, couplings, ends of shafts, keyways and other revolving or reciprocating parts will be guarded to a height of six feet above the floor. The guards should be removed only for repair or adjusting the machine and they should be replaced before operating.

(5) Band saws should not be operated at a temperature below 45^{o}.

(6) Cutter blades should be kept well sharpened, evenly ground and properly and securely fastened in the head.

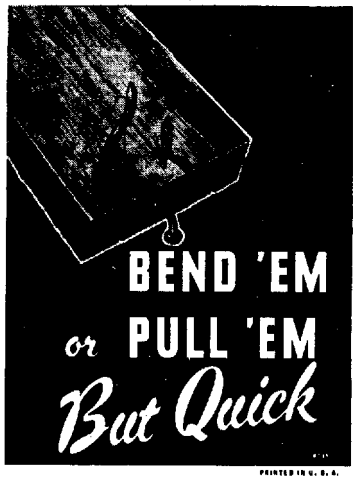
(7) All operators must be thoroughly familiar with all of the starting and stopping devices and power tools.

(8) A saw should be set no higher than necessary to cut through the stock.

(9) A cross cut saw should not be used for ripping nor a rip saw for cross cutting.

b. Safe Practices. In addition to the safe practices set out under Section 2 of Chapter I, the following safe practices are required in the carpentry shop.

(1) Do not leave nails or pieces of wood with protruding nails on the floor.



(2) Do not start power tools until all the properly adjusted and all safety devices are in place. Do not remove or alter safety devices.

(3) Do not permit power tools to run unattended.

(4) Avoid standing in direct line with rapidly revolving machine parts or with materials being fed to or delivered from a machine.

(5) Do not let anyone operate the control button or lever of your machine while you are working on it.

(6) Walk around rather than reach over a machine for any purpose.

(7) Keep hands out of line of travel of a saw. Place hands to the side and to the rear of the material being sawed.

(8) Stop power tools when work or machine is being cleaned or adjusted. Use a brush or stick to remove shavings and drillings.

(9) Be sure that s saw is firmly tightened on the arbor and that it is not cracked. Report promptly all defective parts or improper adjustment.

(10) When a saw binds in a cut, shut off the machine before trying to release the lumber.

(11) Pile your work so that it will not fall.

(12) In no case should the hands be placed back of the saw or work be pulled through from the back as this is apt to bring hands too close to the saw to be safe.

(13) Do not stop the saw too quickly by forcing a piece of wood against the cutting edge when the power is off.

(14) When using a rip saw see that the kick-back equipment is in position and in working order, and be sure the spreader is in place.

(15) Keep the floor around the machine clean.

(16) Be sure not to bump other operators working at their machines.

(17) Goggles must be worn where there is danger of flying material injuring the eyes.

(18) Never wear loose or ragged clothes when working around moving machines.

(19) Wear kick-back apron when operating a circular cross cut saw.

(20) In feeding a table saw, the hands should at all times be kept out of the line of the cut. Even the best guard will permit the hands to follow the stock into the saw.

(21) Stock should always be held against a gauge; never saw free hand.

(22) When ripping with the fence gauge close to the saw, it is desirable to use a stick in order to keep the fingers away from the saw.

(23) To keep out of the way of possible kick-backs the operator should always stand out of the line of stock which he is ripping. An additional precaution is the wearing of a heavy leather apron.

(24) The wearing of safety shoes is recommended.

12. Painting

a. Operating Requirements. In addition to the general regulations set out in Section 1 of Chapter I, the following is required for safe painting operations.

(1) Exhaust ventilators should be provided for all spray painting enclosures.

(2) Personnel not actually engaged in painting or assisting should not be allowed in the spray paint rooms.

(3) Only explosion proof electrical equipment should be used in the spray paint booths.

(4) Adequate fire control equipment should be provided for all painting operations.

(5) Packages containing paints, varnishes, lacquers, thinners or other volatile painting materials should be kept tightly closed when not in actual use and should be stored in well ventilated places where they will not be exposed to excessive heat, smoke, sparks, flames, or the direct rays of the sun.

b. Safe Practices. In addition to the safe practices set out in Section 2 of Chapter I, the following is required for safe painting operations.

(1) When spray painting adjust the gun pressure so that it does not make excessive mist.

(2) Do not use compressed air for cleaning clothes or booths.

(3) Do not eat, drink or store food in any room in which painting is being done.

(4) Avoid touching the face or lips with fingers while at work, and wash thoroughly before eating and before going home.

(5) Place all sweepings, waste, and oil or paint saturated rags in covered metal containers, wet down, and keep the covers closed.

(6) Do not use flammable solvents to clean the walls of spray booths.

(7) Wear approved respirators at all times during spray painting operations.

(8) Do not smoke in paint shops and spray booths area.

13. Welding

a. Operating Requirements. In addition to the general regulations set out in Section 1 of Chapter I, the following is required for safe welding operations.

(1) Compressed gas cylinders will be properly marked to identify their contents.

(2) Regulators or reducing valves will be provided on both oxygen and acetylene cylinders.

(3) Cylinders of oxygen should not be stored with cylinders of acetylene.

(4) Gas cylinders in storage, and not in use, should be secured in an upright position. Storage areas should be dry and well ventilated.

(5) Cylinders should not be exposed to the heat of stoves, radiators or furnaces. When cylinders are stored in the open, protect them from the direct rays of the sun.

(6) Different colors will be used for oxygen and acetylene hose to avoid interchanging.

(7) Electrode holders as well as the connecting cables will be fully insulated.

(8) Fire extinguishers will always be readily accessible to all welding operations.

(9) Welding or cutting will not be undertaken in areas where there are special fire hazards nor will work of this nature be performed near flammable materials unless proper precautions are taken.

(10) Where possible, flammable materials attached to or near equipment requiring welding, cutting or brazing should be removed. If it is not practicable to remove the parts to be welded or to move the flammable material to a safe location, a suitable shield of asbestos or other effective heat resistant material will be provided to protect the flammable material.

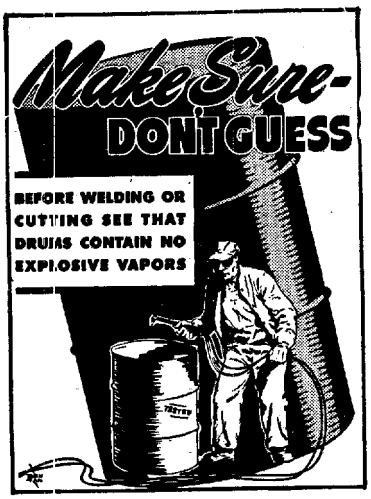
(11) Proper protective equipment such as gloves, goggles, spectacles, helmets, aprons, respirators, etc. will be made available for all welding operations.

(12) Proper ventilation will be provided at all times.

b. Safe Practices. In addition to the safe practices set out in Section 2 of Chapter I, the following is required for safe welding operations.

(1) Do not weld or cut in areas where fire is forbidden nor perform work of this nature near flammable materials unless proper precautions are taken to prevent ignition.

(2) Never attempt to weld, cut, braze, solder, or otherwise heat an empty container that previously contained flammable or explosive substances unless all such substances and their fumes have been completely removed and the container is well vented.



(3) Never attempt to weld, cut, braze, solder, or otherwise heat closed cylinders or jackets unless such units are amply vented.

(4) When it is necessary to weld in a confined space make certain that there is proper ventilation and that no trace of gasoline, acetylene or other explosive vapors are present in the area.

(5) Use no oil, grease or any other lubricant on welding or cutting apparatus. Never allow oil or grease to come in contact with oxygen under pressure.

(6) Do not experiment with or change torches or regulators in any way. Never modify oxygen regulators or use them with acetylene cylinders.

(7) Always use the proper tip or nozzle and operate it at the proper pressure for the particular work involved. This information should be taken from tables or work sheets supplied with the equipment.

(8) Do not permit unauthorized persons or bystanders to use oxyacetylene welding or cutting equipment.

(9) Do not hang a torch with its hose on regulators or cylinder valves. Make sure that the torch is not burning when not in use and that the valves are closed tightly.

(10) Do not use matches for lighting torches. A serious hand burn may result. Use friction lighters, stationary pilot flames, or some other suitable source of ignition.

(11) Do not light torches from hot metal in a confined space. An explosive mixture of acetylene and oxygen in a confined space may cause damage or personal injury when ignited. Do not allow such a mixture to accumulate.

(12) Always wear goggles when working with a lighted torch. Use only goggles designed specifically for welding use.

(13) Do not weld or cut material without first making certain that hot sparks or hot metal will not fall on the legs or feet or the hose and cylinders or on flammable material.

(14) No welding or cutting operations should be performed in wooden buildings with wooden floors unless the floors are protected from sparks and hot metal.

(15) Keep a clear space between the cylinders and the work so that the cylinder valves can be reached easily and quickly if necessary.

(16) Never use cylinders for rollers or supports or for any other purpose than that for which they are intended.

(17) Never use acetylene from cylinders without regulating the pressure. Pressure should not exceed fifteen pounds per square inch.

(18) Never open an acetylene cylinder valve near sparks, flame or other welding or cutting work.

(19) Always turn the acetylene cylinder so that the valve outlet will point away from the oxygen cylinder.

(20) Never interchange acetylene regulators, hose, or other apparatus with similar equipment intended for oxygen.

(21) Never test for acetylene leaks with an open flame. Test all joints for leaks with soapy water.

(22) Never attempt to transfer acetylene from one cylinder to another or to refill an acetylene cylinder or to mix any other gas or gases in an acetylene cylinder.

(23) Always open the acetylene and oxygen cylinder valves slowly to avoid strain on the regulator gauge recording the cylinder pressure. Be sure the regulator tension screw is released before opening the cylinder valves. Do not open acetylene cylinder valves more than one-half turn of the spindle; one-half turn of the spindle is sufficient. Always use the special t-wrench and leave the wrench in position while the cylinder is in use.

(24) Be sure and screw on the valve protecting caps before returning empty cylinders.

(25) Keep oxygen away from all oil and grease and other flammable materials. Oil or grease in the presence of oxygen under pressure will ignite violently.

(26) Take care that oxygen cylinders are not knocked over or struck by heavy objects.

(27) Do not tamper with or attempt to repair oxygen cylinder valves.

(28) Do not substitute oxygen for compressed air in pneumatic tools. Do not use it to blow out pipe lines or to dust clothing or work.

(29) Always use regulators on oxygen cylinders to decrease the cylinder pressure to a low working pressure otherwise the high pressure will burst the hose.

(30) Do not use on oxygen cylinders any regulators, hose or apparatus which have been designed for or used with other gases.

(31) Do not allow the hose to come in contact with oil or grease and protect it from flying sparks, hot slag, hot objects and open flame.

(32) Do not leave the hose where anybody can trip over it and pull a connection off or knock over the cylinders and equipment.

(33) Do not attempt to shut off the gas even temporarily by crimping or kinking the hose.

(34) During welding and cutting operations certain gases, fumes and dusts, often poisonous, are evolved by the heat of the flame. For this reason weld only in well ventilated places or see that you have proper respiratory protection.

(35) If torch becomes overheated cool by immersing in water. In such cases shut off the acetylene gas before immersing the torch but allow the oxygen to bubble through to keep water from entering the blow pipe.

(36) Do not dip hot electrode holders in water.

(37) Place screens of non-flammable material around all electric welding operations to protect the eyes of other workers from harmful arc rays. Do not permit others to watch an electric welding operation.

(38) Do not leave hot rejected electrode studs, steel scrap or tools on the floor or in the booth.

(39) All checking of circuits on electric welding machines must be performed on dead circuits. The high-power feed voltage of the machine may cause severe injury or even death.

(40) Do not operate the polarity switch while the machine is working under the load of a welding current. Arcing at the switch causes severe burning of the contact surfaces and may also burn the person throwing the switch.

(41) Operate the rotary switch only while the machine is idling.

(42) Defective electrode holders should be replaced and loose cable connections to the holder should be tightened to avoid burning the operator and to permit control of the welding operations.

(43) A helmet or head shield should be used to protect the operator's eyes, face and neck from the direct rays of the arc. Be sure that the colored glass plates are not cracked and are of the proper shade for arc welding.

(44) Never look at an electric arc with the naked eye.

(45) Leather gauntlets, gloves, sleeves, aprons and jackets should be worn.

(46) Woolen clothing is recommended rather than cotton. The operator's trousers should be without cuffs and should be long enough to prevent hot metal from falling into the shoes.

EMPLOYEES

ACTION IN CASE OF FIRE

1 – UPON SOUNDING OF FIRE ALARM PROCEED AT ONCE TO SECURE ALL CLASSIFIED MATERIALS IN SAFES AND VAULTS. LOCK ALL SAFEKEEPING CONTAINERS AND VAULTS.

2 – CLOSE AND LOCK ALL WINDOWS.

3 – PROCEED FROM BUILDING USING THOSE STAIRWAYS AND EXITS WHICH YOU HAVE BEEN INSTRUCTED TO USE BY YOUR ASSISTANT EVACUATION OFFICER, TAKING YOUR BADGE AND PERSONAL BELONGINGS WITH YOU.

4 – AFTER LEAVING BUILDING PROCEED TO THE AREA DESIGNATED BY YOUR EVACUATION OFFICER. DO NOT CONGREGATE AROUND EXITS, ADJACENT SIDEWALKS AND DRIVEWAYS WHICH MAY INTERFERE WITH ACTIVITIES OF FIREMEN AND THEIR APPARATUS.

WALK – DON'T RUN